

WHAT IS CLAIMED IS:

1 A method of manufacturing a contoured, consolidated cellulosic
2 article, having a variable basis weight, comprising the steps of:
3 forming a loose mat of cellulosic material and a binder resin, the mat
4 having a top surface and a bottom surface;
5 machining at least one of the top and bottom surfaces to have a pattern;
6 and
7 consolidating the mat between a top platen and a bottom platen, the top
8 and bottom platens having contours complementary to contours in the mat top surface
9 and bottom surface, respectively.

10 2. The method of claim 1, wherein the forming step is performed by
11 sprinkling cellulosic fiber and a binder resin onto a moving conveyor belt and
12 removing variations in mat height with a rotary tool.

13 3. The method of claim 2, further including the step of applying suction
14 through the conveyor belt to hold the mat to the belt.

15 4. The method of claim 3, further including the step of pressing the mat
16 between first and second platens after the forming step and prior to the machining
17 step.

5. The method of claim 4, wherein the pressing step is performed at a pressure within the range of about 10 to about 30 pounds per cubic foot.

6. The method of claim 1, wherein the machining step is performed along one of a longitudinal and lateral axis of the mat.

7. The method of claim 1, wherein the machining step is performed along both a longitudinal and a lateral axis of the mat.

8. The method of claim 6, wherein the machining step is performed using a scalping roller.

9. The method of claim 7, wherein the machining step is performed using a computer numerically controlled router.

10. The method of claim 1, wherein the consolidating step is performed under heat and pressure.

11. The method of claim 1, further including the steps of gathering the cellulosic material during the machining step, and reusing the gathered cellulosic material in subsequent iterations of the forming step.

12. A consolidated cellulosic article formed according to the method of claim 1.

13. A method of manufacturing a consolidated cellulosic article,
comprising the steps of:
depositing cellulosic fiber and a binding agent onto a moving conveyor
belt to form a mat, the conveyor belt being perforated;
applying suction through the conveyor belt, the applied suction holding
the mat to the belt;
scalping a top surface of the mat, the scalping step creating a mat of
uniform height;
pressing the mat between upper and lower platens at a first pressure;
machining a pattern into the top surface by removing cellulosic
material in a desired pattern;
gathering the removed cellulosic material; and
compressing the mat between third and fourth platens, the third and
fourth platens having contours complementary to the top and bottom mat surfaces,
respectively.

14. The method of claim 13, wherein the pressing step is performed at a
pressure within the range of about 10 to about 30 pounds per cubic foot.

15. The method of claim 13, wherein the machining step is performed
along one of a longitudinal and lateral axis of the mat.

16. The method of claim 15, wherein the machining step is performed
using a scalping roller.

17. The method of claim 13, wherein the machining step is performed
along both a longitudinal and a lateral axis of the mat.

18. The method of claim 17, wherein the machining step is performed
using a computer numerically controlled router.

19. The method of claim 13, wherein the compressing step is performed
under heat and pressure.

20. The method of claim 13, further including the step of reusing the
removed cellulosic material in subsequent iterations of the depositing step.

21. A consolidated cellulosic article manufactured according to the method
of claim 13.

22. A method of manufacturing a contoured, consolidated cellulosic article
with variable basis weight, comprising:
forming a loose mat of cellulosic material and a binder resin, the mat
having a top surface and bottom surface;
pre-pressing the loose mat to a first density and caliper;
machining at least one of the top and bottom surfaces to have a pattern;
and
consolidating the mat between a top platen and a bottom platen, the top
and bottom platens having a contours complementary to mat top and bottom surfaces,
respectively, the consolidating step compressing the mat to a second density and
caliper, the second density being greater than the first density.